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(54) MECHANICAL WRITING INSTRUMENT WITH A PLURALITY
OF WRITING MEMBERS

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MECHANICAL WRITING INSTRUMENT

Abstract Of The Disclosure

A mechanical writing instrument having a substantially flat body shaped such that the writing instrument may be used as a bookmark or the like. At least two writing members are disposed within the body and are mounted for reciprocal movement therein. The writing members each include manual actuating fingers operable for moving the writing members between their respective retracted positions and writing positions and for maintaining the writing members in these positions.

MECHANICAL WRITING INSTRUMENT

This invention relates generally to writing instruments and, more particularly, to a mechanical writing instrument including a plurality of writing members.

Mechanical writing instruments, such as mechanical pens, pencils or the like, are generally well known in the art and often include a plurality of writing members which may be selected by a user. Typically, such writing instruments include an operating mechanism for moving one writing member from its retracted position into its extended writing 10 position while simultaneously causing another extended writing member to be returned to its retracted position. However, the prior art writing instruments of this type have not been completely satisfactory in that they are generally bulky in configuration, difficult to operate and expensive to manufacture. In addition, the operating mechanism of such instruments is arranged such that often the writing members cannot be removed from the writing instrument and replaced with "refills" as needed. Accordingly, it is necessary to dispose of the writing instrument when one or 20 more of its writing members or ink cartridges run out of ink. Obviously, such writing instruments are costly and impractical to use. Further, it is also desirable that writing instruments be constructed such that they are adapted to receive "refills" of a standard type, rather than of a type which



must be specially manufactured for the particular operating mechanism of that writing instrument.

Accordingly, it is a broad object of the present invention to provide a mechanical writing instrument which overcomes the difficulties experienced with writing instruments of the prior art. Specifically, it is an object of the present invention to provide a mechanical writing instrument having a plurality of writing members which is easy to manipulate or operate, is manufactured relatively 10 easily and inexpensively on a mass-production basis and includes writing members which may be easily replaced with "refills" as needed.

In accordance with an illustrative embodiment demonstrating objects and features of the present invention, there is provided a mechanical writing instrument having a plurality of writing points which comprises a body having opposed substantially flat faces and at least two channels disposed in a substantially common plane intermediate the flat faces. The two channels merge into a common point opening at one end of the body. At least two writing members, each 20 having a writing point which is disposed in the channels in retracted position, are mounted for reciprocation in the channels in order to extend their respective writing points through the point opening into an extended writing position.

Manual actuating means are operatively connected to each writing member and extend exterior to the body for manually moving the writing members in their channels toward and away from the point opening and into and out of the extended writing positions. The spacing between the opposed substantially flat faces of the body are established to provide the requisite structural walls for the channels yet minimize the dimension of the body at right angles to the common plane thereby providing a body for the writing instrument which is relatively flat in configuration.

In accordance with another illustrative embodiment demonstrating objects and features of the present invention, there is provided a mechanical writing instrument having a plurality of writing points which comprises a body having opposed substantially flat faces and opposed side walls and at least two channels disposed in a substantially common plane intermediate the flat faces. The two channels merge into a common point opening at one end of the body. A first and second writing member, each having a writing point which is disposed in the channels in retracted position, are mounted for reciprocation in the channels in order to extend their respective writing points through the point opening into an extended writing position. First and second manual actuating means are operatively connected to the respective first and second writing members and extend exterior to

the body for manually moving the first and second writing members in their channels toward the point opening and into the extended writing positions. First and second holding and releasing means are operatively connected to the respective first and second actuating means and to the body and are operable in a first position to hold said second and first writing members, respectively, in extended writing positions and are operable in a second position to release the second and first writing members respectively.

- 10 First and second returning means are operatively connected to the body and to the first and second holding and releasing means, respectively, for returning the first and second writing members, respectively, from their extended writing positions to their retracted positions and are operable in response to the actuation to the second position of the second and first holding and releasing means, respectively. The spacing between the opposed substantially flat faces of the body are established to provide the requisite structural walls for the channels yet minimize the dimension of the
- 20 body at right angles to the common plane thereby providing a body for the writing instrument which is relatively flat and thin in configuration.

Advantageously, the two channels define two cartridge-receiving openings formed in the top end of the body so that the first and second writing members may be inserted or withdrawn from their respective channels through

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their respective cartridge-receiving openings. A clip is removably mounted on the top of the body for closing the cartridge-receiving openings after the first and second writing members have been inserted into their respective channels and the clip may be removed from the body to enable the first and second writing members to be withdrawn from their respective cartridge channels through their respective cartridge-receiving openings when it is desired to replace the first and second writing members with refills.

10 The above brief description, as well as further objects, features and advantages of the present invention will be more fully understood by reference to the following detailed description of a presently preferred but nonetheless illustrative embodiment in accordance with the present invention, when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a front elevation view of a mechanical writing instrument according to the present invention;

FIG. 2 is a left side elevation view of the mechanical writing instrument of FIG. 1;

20 FIG. 3 is a right side elevation view of the mechanical writing instrument of FIG. 1;

FIG. 4 is a rear elevation view of the mechanical writing instrument of FIG. 1;

FIG. 5 is a bottom plan view, slightly enlarged in scale, of the mechanical writing instrument of FIG. 1;

FIG. 6 is a top plan view, slightly enlarged in scale, of the mechanical writing instrument of FIG. 1;

FIG. 7 is a front elevation view, partly in section, of a ferrule and one piece of the body of the mechanical writing instrument;

10 FIG. 8 is a front elevation view of the other piece of the body of the mechanical writing instrument showing two writing members disposed within the body;

FIG. 9 is a sectional view, enlarged in scale, taken substantially along the line 9-9 of FIG. 8 and looking in the direction of the arrows, but showing both pieces or halves of the body;

FIG. 10 is a partial rear view of the mechanical writing instrument showing the insertion or removal of one of the writing members;

20 FIG. 11 is a partial sectional view, enlarged in scale, taken substantially along the line 11-11 of FIG. 1 and looking in the direction of the arrows;

FIG. 12 is a top plan view, enlarged in scale, of the writing instrument of FIG. 10 with the clip removed from the illustration for clarity;

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FIG. 13 is an enlarged view of a portion of the mechanical writing instrument of FIG. 8 but illustrating one of the writing members in a position between its retracted position and extended writing position;

FIG. 14 is a right side elevation view of FIG. 13, but showing both pieces or halves of the body;

FIG. 15 is an elevation view, partly in section, of part of one of the writing members utilized in the mechanical writing instrument of the present invention
10 with part of the cartridge broken away;

FIG. 16 is a side elevation view of the writing member of FIG. 15;

FIG. 17 is a sectional view, enlarged in scale, taken substantially along the line 17-17 of FIG. 13 and looking in the direction of the arrows, but showing both pieces or halves of the body;

FIG. 18 is a front elevation view of another embodiment of the mechanical writing instrument according to the present invention;

20 FIG. 19 is a side elevation view of the mechanical writing instrument of FIG. 18;

FIG. 20 is a sectional view taken substantially along the line 20-20 of FIG. 18 and looking in the direction of the arrows, illustrating the top of the body with the clip removed therefrom;

FIG. 21 is a sectional view taken substantially along the line 21-21 of FIG. 19 and looking in the direction of the arrows, illustrating one piece or half of the body of the

mechanical writing instrument with one writing member in its retracted position and one writing member in its extended writing position;

FIG. 22 is a fragmentary sectional view illustrating the connection between the actuating fingers and the ink cartridges;

FIG. 23 is a partial front elevational view of one piece of the body of the mechanical writing instrument showing one of the writing members between retracted and extended 10 position;

FIG. 24 is a sectional view, with parts cut away, taken substantially along the line 24-24 of FIG. 19 and looking in the direction of the arrows, illustrating the other piece or half of the body of the mechanical writing instrument with one writing member in its retracted position and one writing member in its extended writing position;

FIG. 25 is a partial view of the mechanical writing instrument with the clip removed showing the insertion or removal of one of the writing members;

20 FIG. 26 is a top plan view of the top of the body of the mechanical writing instrument with the clip removed showing the removal of one of the writing members; and

FIG. 27 is a fragmentary sectional view, taken substantially along the line 27-27 of FIG. 22 and looking in the direction of the arrows, showing the clip removably mounted on the top of the body of the mechanical writing instrument.

Body 12 is of a two-piece construction and includes substantially identical and symmetrical body members 22, 24 which are adapted to be maintained in confronting relation with each other, for example, by a ferrule 26 located at the bottom of the body members and by clip 18 located at the top of the body members. Alternatively, or in addition thereto, body members 22, 24 may be maintained in opposed relation by cementing these two pieces or halves of body 12 together.

10 Body member 22 is relatively flat and tapered in configuration and includes a substantially flat face 28 having a width which generally decreases from the top to the bottom thereof (see FIG. 1). Body member 22 is also formed with opposed side faces forming side walls, generally designated 30, which are generally perpendicular to the plane formed by face 28. Referring to FIG. 7, body member 22 includes a substantially V-shaped portion 32 which extends inwardly from face 28 intermediate of side walls 30. Thus, V-shaped portion 32 and side walls 30 form guideways, generally designated 34a, 34b in body member 22 with the guideways open and separated 20 from each other at the top of body member 22 and converging, as indicated at 34c, near the bottom of the body member. The guideways terminate at an opening 34d in body member 22. As will be explained hereinafter, guideways 34a, 34b of body member 22 are adapted to cooperate with corresponding and symmetrical guideways in body member 24 to define two cartridge channels which are adapted to receive writing members 14, 16.

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Referring now to the drawings and, more particularly,
to FIGS. 1-8 thereof, a mechanical writing instrument
according to the present invention is generally designated
10 and includes a body, generally designated 12, in which
is disposed writing members, generally designated 14, 16.
A clip, generally designated 18, is mounted near the top
20 of body 12 and is provided such that mechanical writing
instrument 10 may be secured within a pocket or the like
as is generally understood in the art.

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Body member 24 is substantially identical to and symmetrical with body member 22. Thus, body member 24 is relatively flat and tapered in configuration and includes a substantially flat face 28' of a width which generally decreases from the top to the bottom of the body member and opposed side faces forming side walls, generally designated 30', generally perpendicular to the plane formed by face 28'. Guideways, generally designated 34a', 34b' are formed by side walls 30' and a V-shaped portion 32' of body member 24 such that the guideways are separated from each other and open at the top of the body member and converge, as indicated at 34c', terminating at an opening 34d' at the bottom of the body member.

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Body member 22 and body member 24 are adapted to be held in confronting relation such that the corresponding guideways of these members define a first cartridge channel, generally designated 36, and a second and substantially identical cartridge channel, generally designated 38, formed in body 12 (see FIGS. 9 and 12) which are adapted to receive respective writing members 14, 16. Cartridge channel 36, which is adapted to receive writing 14, and cartridge channel 38, which is adapted to receive writing member 16, are generally identical and symmetrical in configuration and are disposed in a substantially common plane intermediate faces 28, 28' of body 12.

Each cartridge channel includes a top channel portion 36a or 38a which is generally U-shaped in cross section and, which defines a corresponding cartridge-receiving opening 40

or 42 at the top 20 of body 12 (see FIG. 12). Cartridge channels 36, 38 converge, near the bottom of body 12, to define a common channel portion, generally designated 37, which common channel portion corresponds to the common or converged portions 34c, 34c' of the guideways. The common channel portion 37 terminates at a point opening 44 located at the end or bottom of body 12 (see FIG. 5) with this point opening being formed by the corresponding openings 34d, 34d' of the guideways. Intermediate the top channel portions 36a, 38a and the common channel portion 37, each cartridge channel includes respective intermediate channel portions 36b, 38b (see FIG. 9), generally circular cross section, which are adapted to receive the cylindrical ink cartridges or "refills" of writing members 14, 16.

Referring now to FIGS. 1-4, 10 and 11, clip 18 is adapted to be removably mounted at the top 20 of body 12 and includes a top portion 18a and sides 18b, 18c depending downwardly therefrom. Clip 18 is sized such that body 12 may be inserted between sides 18b, 18c with the clip frictionally engaging body 12. In order to further secure clip 18 to body 12, body member 24 may be formed with a notch 24a (see FIGS. 10 and 11) which is adapted to cooperate with an inwardly extending projection 18d located on side 18c, with the projection adapted to fit into the notch as indicated in FIG. 11. With clip 18 mounted at the top 20 of body member 12, the top 18a of clip 18 substantially blocks or covers the cartridge-receiving

openings 40, 42 disposed at the top of body 12 (compare FIGS. 6 and 12). As will be explained hereinafter, clip 18 thereby helps to maintain writing members 14, 16 within body 12. It is to be noted, however, that clip 18 may be removed from the top of body 12 in order to provide access to cartridge-receiving openings 40, 42, for example, by using a finger force sufficient to overcome the frictional force between clip 18 and body 12.

Extending downwardly from side 18b, clip 18 includes arms 18e, 18f (see FIG. 1) which are bent away from side 18b (see FIG. 2) and which converge at clip end 18g. A clip projection 18h extends downwardly from clip end 18g and makes contact with face 28 of body 12. As is generally understood, arms 18e, 18f and clip projection 18h of clip 18 function to secure mechanical writing instrument 10 within a pocket of the like or the user, for example, by securing writing instrument to a piece of material which is inserted between clip projection 18h and face 28 of body 12.

Mechanical writing instrument 10 includes writing members 14, 16 which, by way of example, may be of a type generally referred to as "ballpoint" pens or the like. As indicated in FIGS. 8 and 13-17, writing members 14, 16 are substantially identical to each other with each writing member including respective pen cartridges 46, 46' terminating in "ball" or writing points 48, 48'. Pen cartridge 46 and writing point 48 of writing member 14 and pen cartridge 46' and writing point 48' of writing member 16 are similar to conventional ballpoint

pen "refills" with each cartridge being filled with ink 50, 50'. Advantageously, ink 50 in cartridge 46 is different in color than ink 50' in cartridge 46'.

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As will be explained in more detail hereinafter, resilient clips, generally designated 52, 52' are located, respectively, at the top of writing members 14, 16 and are provided for manually moving the writing members toward and away from point opening 44. Specifically, the resilient clips are provided to move the writing members between their respective retracted positions and extended or writing positions.

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Resilient clip 52, which is substantially identical to resilient clip 52', is generally U-shaped in configuration and includes a downwardly extending projection 52a which is adapted to be inserted into the top of cartridge 46 in order to secure the resilient clip to the cartridge. Writing member 14 may be factory assembled and sold with resilient clip 52 and cartridge 46 as a unit (for example, as a single "refill" for the writing instrument) or, in the alternative, writing member 14 may be constructed such that the resilient clip is removable from the cartridge enabling the user to discard empty cartridges while retaining the clip which may be inserted into conventional "refills" which may be purchased separately.

An air slot 52b extends between projection 52a and one leg 52c of clip 52 in order to enable air to enter cartridge 46 in order to provide a proper flow of ink 50 out of writing point 48. Leg 52c is adapted to abut cartridge 46 at the top

thereof as indicated in FIG. 15. The other leg, 52d, of resilient clip 52 is adapted to fit into openings in body 12. Specifically, and referring to FIGS. 13-16, leg 52d is formed to include ribs or flanges 52e disposed on each side of a projection 52f which extends upwardly from the ribs or flanges (see FIG. 16) Projection 52f includes a finger-receiving element 52g having appropriate ridges 52h along the periphery thereof.

10 Located at the end of leg 52d and extending outwardly from each side of finger-receiving element 52g are locking elements 52i which are adapted to fit into corresponding lock-receiving notches formed in body 12 in order to maintain the mechanical writing instrument its retracted position or in its extended writing position, as will be explained in more detail hereinafter. The end of leg 52d opposite ridges 52h of finger-receiving element 52g is chamfered, as indicated at 52j, thereby enabling leg 52d to be flexed toward cartridge 46 (see FIG. 13) as will be explained hereinafter.

20 As with body members 22 and 24, writing member 16 is substantially identical to writing member 14. Thus, writing member 16 includes a cartridge 46' which terminates, at one end thereof, in a writing point 48'. Disposed at the top of cartridge 48' is a generally U-shaped resilient clip 52', formed with legs 52c' and 52d'. Further description of writing member 16 is deemed unnecessary, it being understood that the reference numerals having a prime designation cor-

respond and are substantially identical to the parts of writing member 14 which have heretofore been described.

Referring to FIGS. 13 and 14, side walls 30 of body member 22 and side walls 30' of body member 24 are formed such that when body member 22 is held in confronting relation with body member 24, the respective side walls define cartridge-guiding tracks, generally designated 54, disposed on each side of body 12. Tracks 54 extend along each side of body 12, substantially from the middle of the body to the top 20 of the
10 body; that is, each track extends along the side of body 12 a distance corresponding to top cartridge channel portions 36a and 38a. Each track is shaped to include a lock-receiving notch 56a, disposed intermediate the length of track 54, and a lock-receiving notch 56b, disposed at the lower end of track 54. Lock-receiving notches 56a and 56b are somewhat wider in width than the rest of track 54 (see FIG. 14) and are adapted to receive corresponding lock elements 52i or 52i' in order to maintain the writing members in retracted positions on in extended writing positions. Further, the width of tracks
20 54 are sized such that projection 52f or projection 52f' of the resilient clips is adapted to fit into track 54 thereby enabling the respective writing members to be moved, in a reciprocating manner, from the retracted to writing positions.

In order to provide a more complete understanding of the present invention, a typical assembly and operational

sequence of mechanical writing instrument 10 will now be described.

Mechanical writing instrument 10 is formed substantially from body members 22, 24, writing members 14, 16 and clip 18. Production costs are held low since there are relatively few parts. Further, since the parts are not especially complex in shape, costs of molds, etc. are also held low.

Body 12 is assembled such that body member 22 is held in opposed or confronting relation with body member 24, for example, by permanently fastening the body members together, as by utilizing cement or heat-bonding or the like. With body members 22 and 24 so assembled, the various guideways formed in the body members cooperate to form cartridge channel 36 and cartridge channel 38 with the cartridge channels disposed in a substantially common plane intermediate the flat faces 28 and 28' of the body members. Cartridge channel 36 and cartridge channel 38 are separate from each other and open at the top 20 of body 12 to include cartridge-receiving openings 40, 42. However, the cartridge channels merge into a common point opening 44 formed at the bottom of body 12.

As indicated in the various figures, body 12 is formed to be generally flat in configuration, for example, the spacing between the opposed substantially flat faces 28, 28' is established to provide the requisite structural walls 30, 30' for the cartridge channels but are so sized as to minimize

the dimension of body 12 at right angles to the plane of the faces. Thus, body 12 is relatively flat in configuration and, as a result thereof, the mechanical writing instrument is easily adapted to be used not only as a writing instrument but also as a bookmark or the like. Body 12 is also tapered in configuration with side walls 30, 30' converging toward point opening 44.

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After body 12 has been assembled, writing member 14 and writing member 16 are inserted into their respective cartridge channels, that is, writing member 14 is inserted into cartridge channel 36 through cartridge-receiving opening 40 and writing member 16 is inserted into cartridge channel 38 through cartridge-receiving opening 42. The writing members are inserted into the cartridge channels such that legs 52d, 52d' of resilient clips 52, 52' cooperate with the tracks 54 formed along each side of body 12.

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Specifically, writing member 14 is inserted into cartridge channel 36 such that projection 52f fits into track 54 and locking elements 52i fit into lock-receiving notch 56a. This may be accomplished by exerting a slight finger pressure against finger-receiving element 52g as the writing instrument is inserted into cartridge channel 36 (of course, the resilient clip must be oriented such that projection 52d is in the track) and allowing the leg 52d of the resilient clip to "spring back" into place once the locking elements 52i have reached lock-receiving notch 56a. Note that resilient clip 52 is

designed such that leg 52d is biased against the side walls 30, 30' of body 12 that is, the ribs or flanges 52e of the clip are biased against the side walls. With locking elements 52i in lock-receiving notch 56a, writing instrument 14 is maintained in a "retracted" position, with one end of the writing member, i.e., the top of clip 52, being disposed near the top 20 of body 12 and the other end of the writing member, i.e., the bottom or tip of writing point 48, being disposed near the converged or common channel portion 37 (but still maintained in intermediate channel portion 36b).

In a similar manner, writing member 16 is inserted into cartridge channel 38 with leg 52d' of resilient clip 52' cooperating with track 54 and, more particularly, with projection 52f' and ribs or flanges 52e' guiding the writing member in the track. Writing member 16 is inserted in the cartridge channel to a point where locking projection 52i' "springs" into notch 56a (see FIGS. 8, 13 and 14).

After both writing members have been inserted into their respective writing channels, clip 18 is snapped on 20 to the top of body 12 with projection 18d of the clip inserted into notch 24a of body member 24. With clip 18 in place, it is readily apparent that the top 18a of the clip closes off the cartridge-receiving openings 40, 42 and, therefore, helps to maintain the writing members 14, 16 within body 12.

In operation, both writing members 14, 16 are disposed within body 12 such that the writing members are mounted for

reciprocal movement from their retracted positions to their extended writing positions. Note that although writing members 14, 16 lie in a common plane within body 12, the longitudinal axes of the writing members are not parallel, that is, the longitudinal axes of the writing members converge toward the point opening. When a user desires to write with writing member 14 or writing member 16 (which may depend, for example, on the particular color ink desired), the user moves the chosen writing member from its retracted position to its extended

10. writing position such that the writing point extends out of the point opening of body 12. For example, if writing member 14 is chosen, the user applies finger pressure to finger-receiving element 52g, pressing leg 52d inwardly relative to leg 52c and the rest of the writing member, thereby causing locking elements 52i to clear lock-receiving notch 56a. Maintaining this pressure, the user moves the finger-receiving element toward notch 56b causing writing member 14 to move towards point opening 44. Note, however, that projection 52f is still within track 54 (see FIG. 13) and the resilient clip still "guides" the writing member in track 54 as the writing member is moved in cartridge channel 36.

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Continued motion of the finger-receiving element 52g toward notch 56b causes writing member 14 to reach its extended writing position (see FIG. 8) in which the locking elements 52i have reached lock-receiving notch 56b, corresponding to writing point 48 being extended through point opening 44. Further movement of writing member 14 toward point opening 44 is prevented since the bottom or end of leg 52d of the resilient

clip abuts the somewhat thicker side walls 30, 30' of body 12. Once this position is reached, the user releases finger-receiving element 52g and locking elements 52i "spring" into lock-receiving notch 56b. With locking elements 52i in lock-receiving notch 56b, writing member 14 is maintained in place even as pressure is exerted on writing point 48, for example, during writing with the instrument.

After the user has finished writing, the procedure is reversed and writing member 14 is returned to its retracted position. Note that the cartridge channels 36, 38 are so arranged that writing member 16 cannot be moved into its extended writing position if writing instrument 14 is already in this position since the converging nature of the cartridge channels (at 37) provides room for only one of the writing members.

When it is required to put in a new writing member, for example, a "refill" or the like, clip 18 is removed, the old writing member is removed and a new one inserted (see for example FIG. 10).

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Referring now to FIGS. 18-27, there is shown another embodiment of the mechanical writing instrument embodying features of the present invention, generally designated by the reference numeral 110, which includes a body 112 in which is disposed writing members 114, 116. A clip, generally designated 118, is mounted near the top 120 of body 112 and is provided such that mechanical writing instrument 110 may be secured within a pocket or the like.

Body 112 is of a two-piece construction and includes
10 substantially symmetrical body members 122, 124 which have identical exteriors but dissimilar interiors. More particularly, body members 122, 124 are relatively flat and tapered in configuration and include substantially flat exterior faces 126, 126', respectively, having a width which generally decreases from the top to the bottom thereof (see FIG. 18). In addition, the interiors of body members 122, 124 are adapted to be maintained in confronting relation with each other, for example, by a snap ring 128 located at the bottom of the body members and by clip 118 located at the top of the body members.
20 Alternatively, or in addition thereto, body members 122, 124 may be maintained in opposed relation by cementing or ultrasonically welding these two pieces or halves of body 112 together at contact surfaces defined by narrow plastic ribs 127.

Body member 122 is also formed with opposed side faces forming side walls, generally designated 130, which are generally perpendicular to the plane formed by face 126.

Referring to FIG. 21, body member 122 includes at the upper end thereof a substantially W-shaped portion 132 which extends inwardly from face 126 intermediate of side walls 130. Body member 122 also includes, at its intermediate section, circular guide member 136 and elongated guide member 138 with guide member 136 also serving as the female member which is adapted to receive a male member 136' formed on body member 124 during assembly. Thus, W-shaped portion 132 and side walls 130 form upper guideways, generally designated 140a, 140b in body member 122, and guide members 136, 138 and side walls 130 form lower guideways, generally designated 140c, 140d in body member 122, with the upper guideways separated from each other and open at the top of body member 122 and the lower guideways converging, as indicated at 140c, near the bottom of the body member. The lower guideways terminate at an opening 140f in body member 122. As will be explained hereinafter, upper guideways 140a, 140b and lower guideways 140c, 140d of body member 122 are adapted to cooperate with corresponding and symmetrical guideways formed in body member 124 to define two cartridge channels which 20 are adapted to receive writing members 114, 116.

Body member 124 includes a substantially identical exterior and is symmetrical with body member 122. Thus, body member 124 is relatively flat and tapered in configuration and includes a substantially flat face 126' of a width which generally decreases from the top to the bottom of the body

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member and opposed side faces forming side walls, generally designated 130', generally perpendicular to the plane formed by face 126'. Referring to FIG. 24, body member 124 at the upper end thereof includes an elongated camming member 142 which extends inwardly from face 126' intermediate of side walls 130'. Body member 124 also includes, at its intermediate section, a circular guide member 136' and an elongated guide member 138 with the circular guide member 136' also serving as the male member which is adapted to be received within 10 circular female guide member 136 during assembly. Thus, elongated camming member 142 and side walls 130' form upper guideways, generally designated 140a', 140b' in body member 124, and guide members 136', 138 and side walls 130' form lower guideways, generally designated 140c', 140d', in body member 124, such that the upper guideways are separated from each other and open at the top of body member 124 and the lower guideways converge and terminate at an opening formed at the bottom of body member 124.

20 Body member 122 and body member 124 are adapted to be held in confronting relation such that the corresponding guideways of these members define a first cartridge channel, generally designated 146, and a second and substantially identical cartridge channel, generally designated 148, formed in body 112 (see FIGS. 21 and 24) which are adapted to receive respective writing members 114, 116. Cartridge channel 146, which is adapted to receive writing member 114, and cartridge

channel 148, which is adapted to receive writing member 116, are generally identical and symmetrical in configuration and are disposed in a substantially common plane intermediate faces 126, 126' of body 112.

Each cartridge channel includes a top channel portion 146a or 148a which is generally rectangular in cross section and which defines a corresponding cartridge-receiving opening 150 or 152 at the top 120 of body 112 (see FIG. 24).

Cartridge channels 146, 148 converge near the bottom of body 112,
10 to define a common channel portion, generally designated 147, which common channel portion corresponds to the common or converged portions 140e, 140e' of the guideways. The common channel portion 147 terminates at a point opening 154 located at the end or bottom of body 112 with this point opening being formed by the corresponding openings 140f, 140f' of the guideways. Intermediate the top channel portions 146a, 148a and the common channel portion 147, each cartridge channel includes respective intermediate channel portions 146b, 148b, generally rectangular in cross section, which are adapted to receive
20 the cylindrical ink cartridges or "refills" of writing members 114, 116.

Referring now to FIGS. 18, 19 and 27, clip 118 is adapted to be removably mounted at the top 120 of body 112 and includes a top portion 118a and sides 118b, 118c depending downwardly therefrom. Clip 118 is sized such that body 112 may be inserted between sides 118b, 118c with the clip frictionally engaging body 112. In order to further secure clip 118

to body 112, body member 122 may be formed with a notch 122a which is adapted to cooperate with an inwardly extending projection 118d located on side 118b, with the projection adapted to fit into the notch as indicated in FIG. 27. In addition, body member 124 may be formed with a notch 124a which is adapted to cooperate with an inwardly extending projection 118e located on side 118c, with the projection adapted to fit into the notch as indicated in FIG. 27. With clip 118 mounted at the top 120 of body member 112, the top 118a of clip 118 substantially blocks or covers the cartridge-receiving openings 150, 152 at the top of body 112. As will be explained hereinafter, clip 118 thereby helps to maintain writing members 114, 116 within body 112. It is to be noted, however, that clip 118 may be removed from the top of body 112 in order to provide access to cartridge-receiving openings 150, 152, for example, by using a finger force sufficient to overcome the frictional force between clip 118 and body 112. As shown in FIGS. 21, 23 and 24, the top 118a of clip 118 is provided with two cutouts or prongs 118f, 118g which are 10 inwardly bent at right angles to top 118a for a purpose to be explained hereinafter.

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Mechanical writing instrument 110 includes writing members 114, 116 which, by way of example, may be of a type generally referred to as "ballpoint" pens or the like. As indicated in FIG. 21, writing members 114, 116 are substantially identical to each other with each writing member including

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respective pen cartridges 156, 156' terminating in "ball" or writing points 158, 158'. Pen cartridge 156 and writing point 158 of writing member 114 and pen cartridge 156' and writing point 158' of writing member 116 are similar to conventional ballpoint pen "refills" with each cartridge being filled with ink. Advantageously, the ink in cartridge 156 is different in color from the ink in cartridge 156'.

As will be explained in more detail hereinafter, locking members, generally designated 160, 160' are located, 10 respectively, at the top of writing members 114, 116 and each is provided for manually releasing the other locking member and writing member from its extended writing position and for manually moving that writing member from its retracted position toward point opening 154. Specifically, each locking member is provided to release the other locking member and writing member from an extended writing position and return it to a retracted position so that that locking member and writing member may be moved from a retracted position to an extended writing position.

20 Locking member 160, which is substantially identical to locking member 160', includes a manual actuating finger 162, a locking blade 164 engageable with manual actuating finger 162 and an expansion spring 166 connected at one end to locking blade 164 and at the other end to W-shaped portion 132. Manual actuating finger 162 includes a downwardly extending projection

which is adapted to be inserted into the top of cartridge 156 in order to secure the actuating finger 162 to the cartridge 156. As shown in FIG. 22, cartridge 156' is provided with an indentation for securing projection 162a' within cartridge 156'. Writing member 114 (as well as member 116) may be factory assembled and sold with manual actuating finger 162 and cartridge 156 as a unit (for example, as a single "refill" for the writing instrument) or, in the alternative, writing member 114 may be constructed such that actuating finger 162 is removable from the cartridge
10 enabling the user to discard empty cartridges while retaining the actuating finger which may be inserted into conventional "refills" which may be purchased separately. A flat face 162b is formed on projection 162a in order to enable air to enter cartridge 156 in order to provide a proper flow of ink out of writing point 158.

The main body portion of actuating finger 162 includes a finger-receiving element 162c having ridges along the periphery thereof and which is adapted to fit into openings formed in side walls 130, 130' of body 112. On each side of actuating
20 finger 162, there are also formed shoulders 162d, 162e which are tapered toward the cartridge and which are adapted to be guided by and easily slide within top channel portion 146a. Between finger-receiving element 162c and shoulders 162d, 162e, actuating finger 162 is also provided with recesses 162f formed on both sides thereof and which are adapted to fit within and slide along openings formed in the side walls 130, 130' of body 112. Actuating finger 162 is also provided with a tab 162g

formed on the inner side of shoulder 162d and includes an upper surface 162h and a V-shaped cutout 162j formed in its lower surface for engaging locking blade 164. Preferably, V-shaped cutout 162j should be formed to approximate a right angle.

As stated above, locking member 160 also includes a locking blade 164 having a rib 164a formed on one side thereof with the upper end of the rib 164a having a V-shaped tip 164b formed at a 45° angle for engaging the V-shaped cutout 162j and defining a pivot point. The lower end of locking blade 164 includes a lower surface 164c and one side of locking blade 164 defines a cam follower surface 164d, for a purpose to be explained. Adjacent rib 164a, locking blade 164 is also provided with a recess 164e which is adapted to receive and be connected to one end of expansion spring 166.

Expansion spring 166 may be connected to locking blade 164 and W-shaped portion 132 in any suitable manner. For example, of locking blade 164 is molded from plastic material, one end of expansion spring 166 may be heated and brought into contact with recess 164e so that a portion of the plastic therein will be caused to melt. In this manner, by capillary action, the melted plastic will run between and around the lower end windings of expansion spring 166 so that upon cooling, metal expansion spring 166 is securely fastened within recess 164e formed in plastic locking blade 164.

As may be seen most clearly in FIGS. 21, 23 and 25, the upper end of expansion spring 166 is connected to W-shaped portion 132. More particularly, W-shaped portion 132 is preferably formed of plastic and includes two side arms 132a, 132b

which terminate at about a 45° angle and form respective shoulders 132c, 132d for engaging respective locking blade tips 164b, 164b¹, for a purpose to be explained. In addition, W-shaped portion 132 also includes an elongated central finger 132e so that side arm 132a and elongated finger 132e form a recess 132f therebetween, and so that side arm 132b and elongated finger 132e form a recess 132g therebetween.

Recesses 132f, 132g are adapted to receive and have secured therein the upper ends of respective expansion springs 166,

10 166' which may be connected to these recesses in any suitable manner. For example, as explained above, the upper ends of the springs are heated and brought into contact with the plastic in the respective recesses. In this manner, by capillary action, the melted plastic will run between and around the end windings of the expansion springs 166, 166' so that upon cooling, the upper ends of expansion springs 166, 166' are securely fastened to the respective recesses 132f, 132g of W-shaped portion 132 of body member 122.

As with writing members 114 and 116, locking member 160 is substantially identical to locking member 160'. Thus, locking member 160' includes an actuating finger 162', a locking blade 164' for engagement with actuating finger 162' and an expansion spring 166'. Further description of locking member 160' is deemed unnecessary, it being understood that the reference numerals having a prime designation correspond and are substantially identical to the parts of locking member 160 which have heretofore been described.

Referring to FIGS. 19 and 21, side walls 130 of body member 122 are recessed at the upper ends thereof at 130a and define lower shoulders 130b and upper inwardly extending shoulders 130c; similarly, in FIG. 24, side walls 130' of body member 124 are recessed at the upper ends thereof at 130a' and define lower shoulders 130b' and upper inwardly extending shoulders 130c'. In this manner, when body member 122 is held in confronting relation with body member 124, the respective recessed portions 130a, 130a' define cartridge-guiding tracks 170, disposed on each side of body 112; the respective lower shoulders 130b, 130b' define lower track abutments 172, disposed on each side of body 112; and the respective inwardly extending shoulders 130c, 130c' define upper track abutments 174, disposed on each side of body 112. Tracks 170 extend along each side of body 112, substantially from the middle of the body to the top 120 of the body; that is, each track extends along the side of body 112 a distance corresponding to top cartridge channel portions 146a and 148a. Further, the width of tracks 170 are sized such that actuating finger recesses 162f or 162f' are adapted to fit into tracks 170 thereby enabling the respective writing members 114, 116 to be moved, in a reciprocating manner, from the retracted to the extended writing positions.

In order to provide a more complete understanding of the embodiment illustrated in FIGS. 18-27, a typical assembly and operational sequence of the mechanical writing instrument 110 will now be described.

Mechanical writing instrument 110 is formed substantially from body members 122, 124, writing members 114, 116, clip 118 and locking members 160, 160', and to assemble the mechanical writing instrument 110, expansion springs 166, 166' are preferably first attached to respective locking blades 164, 164', as above described. Then, the upper ends of expansion springs 166, 166' are connected to the respective recesses 132f, 132g formed in W-shaped portion 132 of body member 122, as above described. The tension of expansion
10 springs 166, 166' is such that the upper tips 164b, 164'b' of locking blades 164, 164' will engage and be held against respective shoulders 132c, 132d formed on the lower ends of respective arms 132a, 132b.

Body 112 is then assembled such that body member 122 is held in opposed or confronting relation with body member 124, for example, by permanently fastening the body members together, as by utilizing cement or an ultrasonic welding process or the like. In addition, snap ring 128 is pressed and snap-fitted about grooves 129, 129' formed in the bottom ends of respective
20 body members 122, 124. With body members 122 and 124 so assembled, the various guideways formed in the body members cooperate to form cartridge channel 146 and cartridge channel 148 with the cartridge channels disposed in a substantially common plane intermediate the flat faces 126 and 126' of the body members.

Cartridge channel 146 and cartridge channel 148 are separate from each other and open at the top 120 of body 112 to include cartridge-receiving openings 150, 152. However, the cartridge channels merge into a common point opening 154 formed at the bottom of body 112.

As indicated in the various figures, body 112 is formed to be generally flat in configuration. For example, the spacing between the opposed substantially flat faces 126, 126' is established to provide the requisite structural side walls 130, 130' for the cartridge channels but are so sized as to minimize the dimension of body 112 at right angles to the plane of the faces. Thus, body 112 is relatively flat in configuration and, as a result thereof, the mechanical writing instrument is easily adapted to be used not only as a writing instrument but also as a bookmark or the like. Body 112 is also tapered in configuration with side walls 130, 130' converging toward point opening 154.

After body 112 has been assembled, the projection of actuating finger 162 is inserted into the top of cartridge 156 in order to secure actuating finger 162 to the cartridge 156. In a like manner, projection 162a' is inserted into the top of cartridge 156' in order to secure actuating finger 162' to cartridge 156'. Writing member 114 and writing member 116 are then inserted into their respective cartridge channels, that is, writing member 114 is inserted into cartridge channel 146 through cartridge-receiving opening 152 and writing member 116

is inserted into cartridge channel 148 through cartridge-receiving opening 150.

Specifically, writing member 114 is inserted into cartridge channel 146 such that the recesses 162f of actuating finger 162 engage and slide relative to upper track abutment 174, shoulders 162d, 162e of actuating finger 162 slide relative to top channel portion 146a, and tab 162g engages and slides relative to and above arm 132a until shoulders 162d, 162e pass below upper track abutment 174. In addition, when tab 162g reaches the bottom end of arm 132a, V-shaped cutout 162j engages the upper tip 164b of locking blade 164. Accordingly, once shoulders 162d, 162e have passed below upper track abutment 174 and the V-shaped cutout 162j has engaged the upper tip 164b, the pressure being applied to actuating finger 162 to insert it into channel 146 may be released so that actuating finger 162 will move or "spring" outwardly due to the outward bias caused by spring 166 acting on locking blade 164. In addition, this spring action is enhanced due to the resiliency of cartridge 156. That is, as may be seen in FIG. 21, when actuating finger 162' is pushed inwardly, cartridge 156' is slightly bent or deflected about guide members 136, 138 so that when the finger pressure is released, the resiliency of cartridge 156' will cause it to spring outwardly. In this position, the upper surfaces of shoulders 162d, 162e engage upper track abutment 174 to prevent locking member 160 from moving out through cartridge opening 152 as a result of the force which spring-biased locking blade 164 places against actuating finger 162.

With shoulders 162d, 162e engaging upper track abutment 174, writing member 114 is maintained in a "retracted" position, with the top end of the writing member being disposed near the top 120 of body 112 and the bottom end of writing member 114 or the writing point 158 being disposed near the converged or common channel portion 147 (but still maintained in intermediate channel portion 146b).

In a similar manner, writing member 116 is inserted into cartridge channel 148 until shoulders 162d', 162e' pass below upper track abutment 174 and the V-shaped cutout 162j' engages the upper tip 164b' so that the pressure being applied to actuating finger 162' may be released so that actuating finger 162' will move or "spring" outwardly due to the bias of spring 166' acting on the locking blade 164' and the resiliency of cartridge 156'.

After both writing members have been inserted into their respective cartridge channels, clip 118 is snapped onto the top of body 112 with projection 118d of the clip inserted into notch 122a of body member 122 and with projection 118e of the clip inserted into notch 124a of body member 124. Also, as stated above, the top 118a of clip 118 is provided with two downwardly extending prongs 118f, 118g which are adapted to be inserted into tracks 170 formed on each side of body 112 and serve a dual purpose: first, they function as a spacer in tracks 170 so that a user of the mechanical writing instrument cannot compress body members 122 and 124 at the upper end while manipulating the mechanical writing

instrument because such compression may interfere with the workings of locking blades 164, 164' and expansion springs 166, 166'; second, they function to abut the upper angled surface of actuating fingers 162, 162' and act as a stop when they are pressed inwardly, for a purpose to be explained. With clip 118 in place, it is readily apparent that the top 118a of the clip closes off the cartridge-receiving openings 150, 152 and, therefore, helps to maintain the writing members 114, 116 within body 112.

10 In operation, both writing members 114, 116 are disposed within body 112 such that the writing members are mounted for reciprocal movement from their retracted positions to their extended writing positions. Note that although writing members 114, 116 lie in a common plane within body 112, the longitudinal axes of the writing members are not parallel, that is, the longitudinal axes of the writing members converge toward point opening 154. When a user desires to write with writing member 114 or writing member 116 (which may depend, for example, on the particular color ink 20 desired), the user moves the chosen writing member from its retracted position to its extended writing position such that the writing point extends out of the point opening 154 of body 112.

For example, as shown in FIG. 21, if writing member 114 is selected, the user applies finger pressure to finger-receiving element 162c and pulls it toward point opening 154. Note, however, that recesses 162f are still

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within track 170 and the actuating finger 162 still "guides" writing member 114 in track 170 as the writing member is moved in cartridge channel 146. Continued motion of actuating finger 162 causes writing member 114 to reach its extended writing position in which the lower surface of actuating finger 162 engages lower track abutment 172, corresponding to writing point 158 being extended through point opening 154. Once this position is reached, the user releases actuating finger 162 and locking blade 164', which has pivoted into engagement with the upper surface 162h of tab 162g, holds and locks writing member 114 in its extended writing position even as pressure is exerted on writing point 158 as, for example, during writing with the instrument. More particularly, it should be noted that as the user moves the actuating finger 162 toward lower track abutment 172, tab 162g of actuating finger 162 moves locking blade 164 downwardly and stretches its corresponding expansion spring 166. As expansion spring 166 is attached at its lower end to recess 164e of locking blade 164 which is substantially inward relative to pivot point 164b, locking blade 164 will consequently move inwardly and come to a stop when its lower surface 164c abuts retracted writing member 116. In addition, as locking blade 164' of the retracted writing member 116 is similarly attached to its expansion spring 166', locking blade 164' also has a tendency to move inwardly so that its lower surface 164c' will engage the upper surface 162h of tab 162g to hold and lock writing member 114 in its extended writing position.

When the user desires to retract the extended writing member 114, he simply presses inwardly on the opposite actuating finger 162' which is in its retracted position. This finger pressure causes writing member 116 to bend slightly inwardly with actuating finger 162'. This inward motion of actuating finger 162' (and tab 162g') causes cam follower surface 164d' of locking blade 164' which is engaging camming member 142 at point 142a to pivot.

10 The pivotal movement of locking blade 164' will cause it to rotate in a clockwise direction from the holding position shown in FIG. 21 to the releasing position in FIG. 24, which is shown in dotted lines. As locking blade 164' is no longer engaging tab 162g of the extended writing member 114, expansion spring 166 will cause locking blade 164, actuating finger 162 and writing member 114 to return to their retracted position, as shown in FIG. 23. Of course, the upward movement will be stopped when the upper surfaces of shoulders 162d, 162e engage upper track abutment 174. Now that writing member 114 is retracted, if the user desires to write with writing member

20 116, it is only necessary for the user to move actuating finger 162' toward lower track abutment 172 causing writing member 116 to move towards point opening 154. However, in this case, locking blade 164 will pivot in a clockwise direction about camming member 142 to engage tab 162g' and thereby hold and lock writing member 116 in its extended writing position.

It should be understood that inwardly extending prongs 118f, 118g of clip 118 will prevent respective actuating fingers 162, 162' from sliding upwardly (toward clip 118) when the user applies inward pressure thereto for retracting one of the writing members. As shown in FIG. 21, prongs 118f, 118g do not engage the inclined upper surfaces of actuating fingers 162, 162'. However, when actuating fingers 162, 162' are pressed inwardly, for example, as shown in FIG. 23, prong 118g engages the inclined upper surface of actuating finger 162' so that the user cannot accidentally allow writing member 116 to slide outwardly toward clip 118 which would cause V-shaped cutout 162j' to be disengaged from V-shaped tip 164b'.

When it is required to put in a new writing member, for example, a "refill" or the like, clip 118 is first removed. Then, the user presses inwardly, as shown in FIG. 25, on actuating finger 162 and pulls it upwardly towards cartridge-receiving opening 150. Actuating finger 162 and cartridge 156 will slide upwardly, but the upper tip 164b of locking blade 164 will be biased against shoulder 132c by expansion spring 166 and will be held in this position. It should be noted that the inward motion of actuating finger 162 causes shoulders 162d, 162e to be moved out of engagement with upper track abutment 174 so that shoulders 162d, 162e will be free to slide within top channel portion 146a. When a new writing member is inserted into channel 146, tab 162g of actuating finger 162 will slide along the upper

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surface of arm 132a until V-shaped cutout 162j engages V-shaped tip 164b with expansion spring 166 causing locking blade 164 to be maintained in engagement with tab 162g.

Obviously, numerous modifications are possible in light of the above disclosure. It is to be understood, therefore, that the above-described embodiments are merely examples of the application of the principles of the present invention. Further embodiments will be apparent to those skilled in the art without departing from the spirit or scope of the 10 invention as delineated by the scope of the following claims.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:-

1. A writing instrument having a plurality of writing points comprising a body member having first and second channels merging into a common point opening at one end thereof, first and second writing members each having a writing point disposed in said respective first and second channels in retracted positions and mounted for reciprocation therein to extend their respective writing points through said point opening into an extended writing position, first manual actuating means operatively connected to said first writing member and extending exteriorly of said body member for manually moving said first writing member in said first channel toward said point opening and into said extended writing position, second manual actuating means operatively connected to said second writing member and extending exteriorly of said body member for manually moving said second writing member in said second channel toward said point opening and into said extended writing position, first holding

and releasing means operatively connected to said first actuating means and to said body member and being operable in a
20 first position to hold said second writing member in said extended writing position and being operable in a second position to release said second writing member, second holding and releasing means operatively connected to said second actuating means and to said body member and being operable in
25 a first position to hold said first writing member in said extended writing position and being operable in a second position to release said first writing member, first returning means operatively connected to said body member and to said second holding and releasing means for returning said
30 second writing member from said extended writing position to said retracted position in response to the actuation of said first holding and releasing means to said second position and second returning means operatively connected to said body member and to said first holding and releasing means
35 for returning said first writing member from said extended writing position to said retracted position in response to the actuation of said second holding and releasing means to said second position.

2. A writing instrument according to claim 1 wherein said body member includes opposed substantially flat faces with said first and second channels being disposed in a substantially common plane intermediate said flat faces.

3. A writing instrument according to claim 2

wherein said body member includes opposed side walls being tapered toward each other from substantially the top end to the bottom end thereof and converging at said point opening 5 such that said body member has a continuously decreasing cross section from substantially the top end to the bottom end thereof with said first and second channels converging in substantially parallel relation to said side walls.

4. A writing instrument according to claim 3 wherein the spacing between said opposed substantially flat faces is of a dimension substantially equal to the dimension of said first and second writing members in trans- 5 verse section and being established to provide said tapered side walls for said first and second tapered channels yet to minimize the dimension of said body member at right angles to said plane whereby said body member is relatively thin.

5. A writing instrument according to claim 1 wherein said first and second channels define respective first and second cartridge-receiving openings formed in the top end of said body member, and clip means removably 5 mounted on the top end of said body member for substantially closing said first and second cartridge-receiving openings after said first and second writing members have been inserted into their respective cartridge channels, said clip means adapted to be removed from said body member to enable said 10 first and second writing members to be inserted or withdrawn

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from their respective cartridge channels through said first and second cartridge-receiving openings.

6. A writing instrument according to claim 1 wherein said first actuating means includes a first extension operatively connected to said first holding and releasing means and operable when said first writing member is in an extended writing position to be engaged by said second holding and releasing means.

7. A writing instrument according to claim 6 wherein said second actuating means includes a second extension operatively connected to said second holding and releasing means and operable when said second writing member is in an extended writing position to be engaged by said first holding and releasing means.

8. A writing instrument according to claim 1 further including a camming member on said body member, said first holding and releasing means being operable to engage said camming member when in said first position and being operable in response to actuation by said first actuating means to pivot about said camming member to said second position, and said second holding and releasing means being operable to engage said camming member when in said first position and being operable in response to actuation by said second actuating means to pivot about said camming member to said second position.

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9. A writing instrument according to claim 6
wherein said first returning means includes first biasing
means operable in a normal position to maintain said second
writing member in a retracted position and adapted to be
5 operated to a biased position to maintain said second ex-
tension in engagement with said first holding and releasing
means.

10. A writing instrument according to claim 9
wherein said second returning means includes second biasing
means operable in a normal position to maintain said first
writing member in a retracted position and adapted to be
5 operated to a biased position to maintain said first exten-
sion in engagement with said second holding and releasing
means.

11. A writing instrument according to claim 3
wherein said opposed side walls are constructed and arranged
to define track means for guiding said first and second
manual actuating means as said respective first and second
5 writing members are moved between said extended and retracted
positions.

12. A writing instrument according to claim 11
wherein said first and second manual actuating means each
include guide means for guiding said first and second manual
actuating means within said track means as said respective
5 first and second writing members are moved within said body

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member between said retracted positions and said extended writing positions.

13. A writing instrument according to claim 1 wherein said first and second writing members are disposed in a substantially common plane, the longitudinal axes of said first and second writing members converging toward
5 said common point opening.

14. A writing instrument according to claim 11 wherein said track means include abutment means for engagement with said first and second manual actuating means in their retracted positions.

15. A writing instrument according to claim 1 wherein said first and second writing members are each provided with indentations and wherein said first and second manual actuating means are each provided with projections
5 for securing said first and second writing members to said respective first and second manual actuating means.

16. A writing instrument according to claim 3 wherein said body member includes a circular groove formed at substantially the bottom end thereof and a tapered ring which is adapted to be snap-fitted into said groove.

17. A writing instrument according to claim 1 wherein said first and second writing members are resilient and are adapted to be deflected within said respective first

and second channels upon actuation of said respective first
5 and second manual actuating means.

18. A writing instrument according to claim 10
wherein said first and second biasing means include metal
expansion springs, embedded in said body member.

19. A writing instrument according to claim 1
wherein said first and second channels define respective
first and second cartridge-receiving openings formed in the
top of said body member, and said first and second manual
5 actuating means each include tapered shoulders for facilitat-
ing the insertion of said first and second writing members in-
to their respective channels through said respective first and
second cartridge-receiving openings.

20. A writing instrument having a plurality of writ-
ing points comprising a body member having first and second
channels merging into a common point opening at one end there-
of, first and second writing members each having a writing
5 point disposed in said respective first and second channels
in retracted positions and mounted for reciprocation therein
to extend their respective writing points through said point
opening into an extended writing position, first manual actu-
ating means operatively connected to said first writing mem-
10 ber and extending exteriorly of said body member for manually
moving said first writing member in said first channel toward
said point opening and into said extended writing position,

second manual actuating means operatively connected to said second writing member and extending exteriorly of said body
15 member for manually moving said second writing member in said second channel toward said point opening and into said extended writing position, first holding and releasing means operatively connected to said first actuating means and to said body member and being operable in a first position to engage said second actuating means to hold said second writing member in said extended writing position and being operable to a second position by said first actuating means to disengage said first holding and releasing means from said second actuating means to release said second writing member, second
25 holding and releasing means operatively connected to said second actuating means and to said body member and being operable in a first position to engage said first actuating means to hold said first writing member in said extended writing position and being operable to a second position by
30 said second actuating means to disengage said second holding and releasing means from said first actuating means to release said first writing member, first returning means operatively connected to said body member and to said second holding and releasing means for returning said second writing member from
35 said extended writing position to said retracted position in response to the actuation of said first holding and releasing means to said second position and second returning means operatively connected to said body member and to said first holding and releasing means for returning said first writing

40 member from said extended writing position to said retracted position in response to the actuation of said second holding and releasing means to said second position.

21. A writing instrument having a plurality of writing points comprising a body member having first and second elongated and substantially straight channels merging into a common point opening at one end thereof, first and
5 second writing members each having a writing point disposed in said respective first and second channels in retracted positions and mounted for substantially straight line reciprocation therein to extend their respective writing points through said point opening into an extended writing position,
10 first manual actuating means operatively connected to said first writing member and extending exteriorly of said body member for manually moving said first writing member in said first channel toward said point opening and into said extended writing position, second manual actuating means operatively connected to said second writing member and extending exteriorly of said body member for manually moving said second writing member in said second channel toward said point opening and into said extended writing position, first holding
15 and releasing means operatively connected to said first actuating means and to said body member and being operable in a first position to hold said second writing member in said extended writing position and being operable in a second position to release said second writing member, second holding and releasing means operatively connected to said second

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25 actuating means and to said body member and being operable
in a first position to hold said first writing member in
said extended writing position and being operable in a second
position to release said first writing member, first return-
ing means operatively connected to said body member and to
30 said second holding and releasing means for returning said
second writing member from said extended writing position to
said retracted position in response to the actuation of said
first holding and releasing means to said second position
and second returning means operatively connected to said body
35 member and to said first holding and releasing means for re-
turning said first writing member from said extended writing
position to said retracted position in response to the actua-
tion of said second holding and releasing means to said
second position.

FIG. 2.

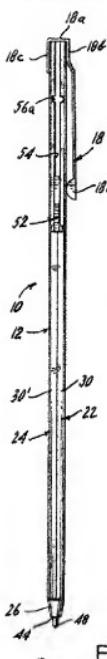


FIG. I.



FIG. 3.

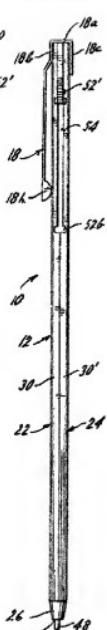


FIG. 4.



FIG. 5.

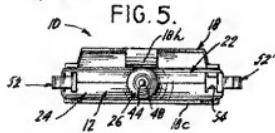


FIG. 6.



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FIG. 7.

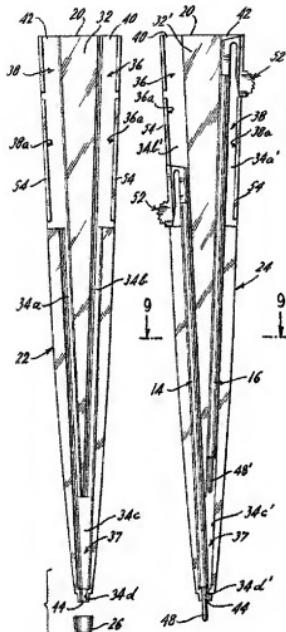


FIG. 8.

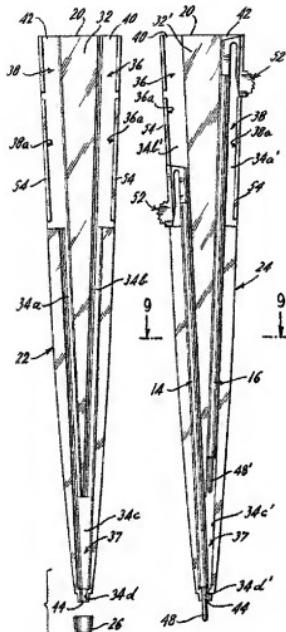


FIG. 10

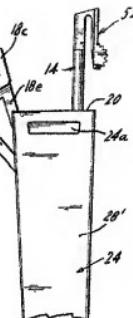


FIG. II

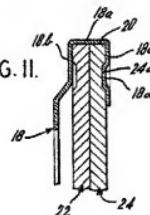
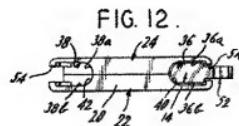


FIG. 9.



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FIG. 13.

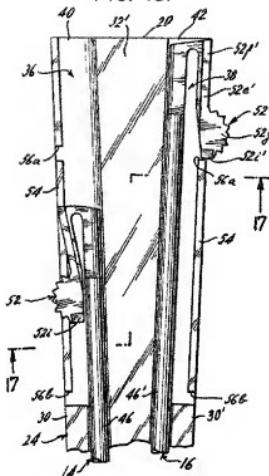


FIG. 14.

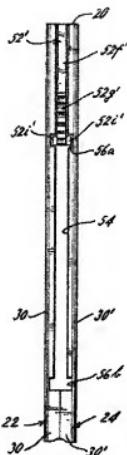


FIG. 15.

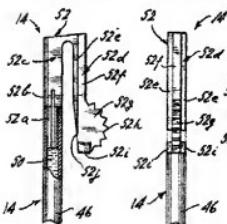


FIG. 16.



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FIG.20

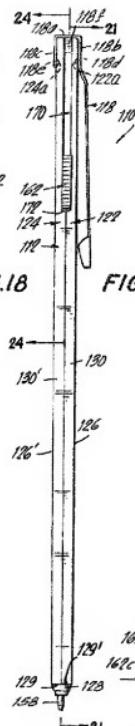


FIG. 19

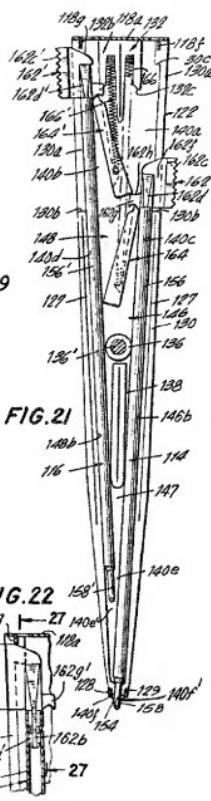


FIG. 21

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FIG. 23

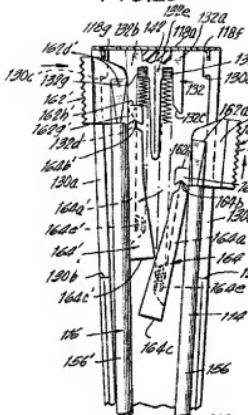


FIG 25^{162h}

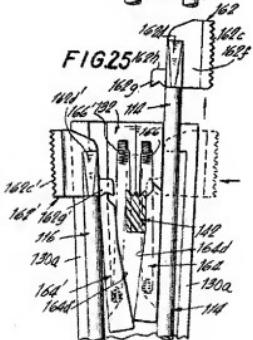


FIG. 24

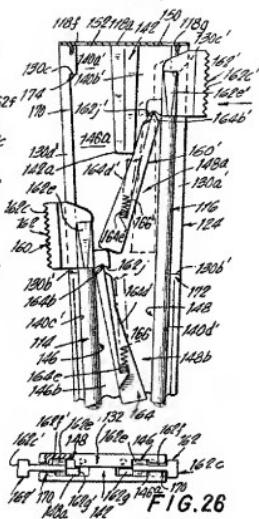


FIG. 26

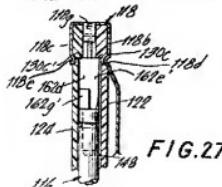


FIG.27